

In the Specification:

Please replace the paragraph at page 2, lines 8-27 of the Specification with the following paragraph, which includes markings showing the changes made to the Specification:

As described in ~~pending~~ U.S. Patent Application Serial Nos. 08/954,372 filed on October 20, 1997, now abandoned, and 09/078,849 filed on May 14, 1998, now U.S. Patent No. 6,277,521, issued August 21, 2001, both of which are incorporated by reference herein in their entirety, we have found that doping lithium metal oxides such as nickel, cobalt, and nickel/cobalt oxides with certain combinations of dopants such as Ti and Mg increases the safety of these lithium metal oxides when used in secondary lithium and lithium-ion batteries by providing these lithium metal oxides with overcharge protection. In working with these doped lithium metal oxides, we unexpectedly discovered that when part of the Ti is not in the main lithium metal oxide phase, or in other words, when some of the titanium appears as a separate phase, and particularly in the form of Li_2TiO_3 and optionally additionally TiO_2 , the material has a higher power capability and/or lower impedance than conventional materials when used as the positive electrode active material in secondary lithium and lithium-ion batteries. The reduced impedance of the positive electrode active material improves the power capability of the secondary lithium or lithium-ion battery and allows the battery to deliver or retake energy in short periods of time. Therefore, the positive electrode active material of the invention, when used with secondary lithium and lithium-ion secondary batteries, is suitable for use in large power applications such as with power tools, electric bikes, and HEVs. In addition to Ti, it is believed that other tetravalent metals such as Zr, Sn, Mn, Mo, Si, Ge, Hf, Ru and Te and that Al will produce similar effects when present as separate lithium metal oxide phases in the positive electrode active material.

In re: Gao et al.
Docket No.: 208-6164
Serial No.: 10/040,047
Page 3 of 20

Please replace the paragraph at page 16, lines 3-14 of the Specification with the following paragraph, which includes markings showing the changes made to the Specification:

Once the intimate mixture has been fired to form the $\text{LiM}^1_{x-y}\{\text{A}\}_y\text{O}_z$, $\text{Li}_2\text{M}^2\text{O}_3$ or LiAlO_2 , and optional M^2O_2 compounds, these compounds are cooled. Preferably, these compounds are cooled at a rate of greater than or equal to about $0.5^\circ\text{C}/\text{min}$ and less than or equal to about $140^\circ\text{C}/\text{min}$. As would be understood by those skilled in the art, the cooling rate is typically selected based on the $\text{LiM}^1_{x-y}\{\text{A}\}_y\text{O}_z$ compound produced. For example, if M^1 is Ni, $x=1$ and $z=2$, a slow cooling rate is preferably used (e.g. $1-5^\circ\text{C}/\text{min}$) to facilitate the uptake of oxygen in the $\text{LiM}^1_{x-y}\{\text{A}\}_y\text{O}_z$ compound upon cooling. However, if M^1 is Co, $x=1$ and $z=2$, a fast cooling rate (e.g. $8-140^\circ\text{C}/\text{min}$, more preferably $10-100^\circ\text{C}/\text{min}$) is preferably used to prevent the formation of localized cubic spinel-like structural phases on the surface of the crystallites or within the crystalline structures as described in more detail in U.S. Patent Application Serial No. 09/439,620, filed on November 12, 1999, now abandoned, which is incorporated by reference herein in its entirety.